

In The Claims

1. (currently amended) A method for making a cell-matrix construct for use as a heart valve ~~or blood vessel~~ comprising

implanting into an animal ~~at a first site~~ a fibrous matrix formed of a ~~synthetic~~ biocompatible, biodegradable polymer having seeded therein ~~a mixture of~~ cells selected from the group ~~selected from~~ consisting of endothelial cells, myofibroblasts, skeletal muscle cells, vascular smooth muscle cells, myocytes, fibromyoblasts, and ectodermal cells;
~~wherein the matrix is formed of a biocompatible, biodegradable polymer, and~~
~~implanting at a site where the resulting cell construct is needed.~~

2. (original) The method of claim 1 further comprising seeding the matrix with dissociated parenchymal or connective tissue cells.

3. (currently Amended) The method of claim 1 wherein the matrix is first cultured at a first site in a patient prior to being ~~implanted at~~ transplanted to a second site.

4. (currently Amended) The method of claim 1 wherein the matrix is in the form of a heart valve leaflet ~~and is implanted in the heart~~.

5. (currently Amended) The method of claim 1 wherein the cell-matrix construct is seeded with vascular smooth muscle cells and endothelial cells and [is] implanted to form a valve.

6. (cancelled) The method of claim 5 wherein the valve is a heart valve.

7. (cancelled) The method of claim 1 wherein the cell-matrix construct is seeded with endothelial cells and implanted to form a blood vessel.

8. (New) The method of claim 5 wherein the valve has mechanical strength, and flexibility or pliability.

9. (New) The method of claim 1 wherein the cell-matrix construct is formed of a polymer selected from the group consisting of poly(lactide) (PLA), poly(glycolic acid) (PGA), poly(lactide-co-glycolide) (PLGA), poly(caprolactone), polycarbonates, polyamides, polyanhydrides, polyamino acids, polyortho esters, polyacetals, polycyanoacrylates, and degradable polyurethanes.

10. (New) The method of claim 1 wherein the cell-matrix construct is formed of a polymer selected from the group consisting of polyacrylates, ethylene-vinyl acetate polymers, acyl substituted cellulose acetates, non-erodible polyurethanes, polystyrenes, polyvinyl chloride, polyvinyl fluoride, poly(vinyl imidazole), chlorosulphonated polyolifins, polyethylene oxide, polyvinyl alcohol, and nylon.

11. (New) The method of claim 1 wherein the cell-matrix construct contains interconnected pores in the range of between approximately 100 and 300 microns.

12. (New) The method of claim 1 wherein the cell-matrix construct includes growth factors.

13. (New) The method of claim 12 wherein the growth factors are selected from the group consisting of heparin binding growth factor (hbgf), transforming growth factor alpha or beta (TGF β), alpha fibroblastic growth factor (FGF), epidermal growth factor (TGF), vascular endothelium growth factor (VEGF), insulin, glucagon, estrogen, nerve growth factor (NGF) and muscle morphogenic factor (MMP).

14. (New) The method of claim 1 wherein the cell-matrix further comprises bioactive factors incorporated to between one and 30% by weight.

15. (New) The cell-matrix construct of any of claims 1-14.